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ABSTRACT

This test is designed to measure the functional health of young people. Functional health refers to those factors relating to personal health that can be improved with regular exercise. This test is unique in comparison to other physical fitness tests because of the absence of motor skill items which have no relationship to an individual's functional health. Four of the five test items directly relate to personal health areas that can be improved through regular exercise: (1) cardio-respiratory function--one mile run: (2) body composition--skinfold measurement of triceps: (3) musculoskeletal function of abdominal, upper arm, and shoulder region--bent knee sit up: and (4) flexibility of lower back and posterior thigh muscles--sit and reach. Although it is understood that the fifth test item, the flexed arm hang for both sexes, is referred to as athletic ability, it is included because of the imperative need for improvement in upper arm and shoulder girdle strength of United States youth. (Author)

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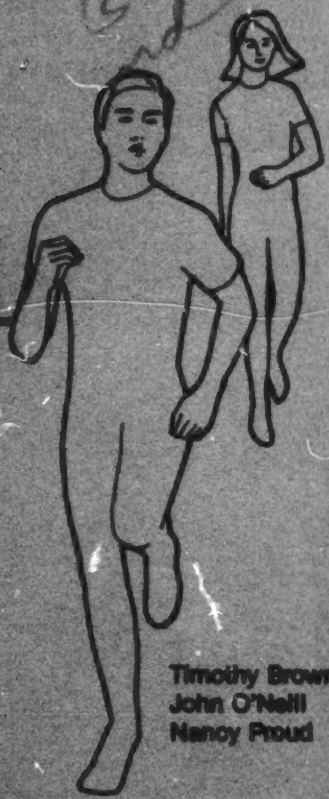
First State Fitness Test

A MEASUREMENT OF FUNCTIONAL HEALTH



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Introduction

The First State Fitness Test is designed to measure the functional health of our youth. Functional health refers to those factors relating to personal health that can be improved with regular exercise. This test is unique in comparison to other physical fitness tests because of the absence of motor skill items which have no relationship to an individual's functional health.

Four of the five test items directly relate to personal health areas that can be improved through regular exercise:

1) Cardio-respiratory function — one mile run
2) Body Composition — skinfold measurement of triceps
3) Musculoskeletal function of abdominal, upper arm and shoulder region — bent knee sit up
4) Flexibility of lower back and posterior thigh muscles — sit and reach.

Although it is understood that the fifth test item, the flexed arm hang for both sexes, is referred to as athletic ability, it is included because of the imperative need for improvement in upper arm and shoulder girdle strength of United States youth.

The test items help identify some of the areas that have become very much neglected in our daily living and in turn result in the development of hypokinetic conditions. These are health problems caused by inactivity and lack of exercise, e.g., heart attacks, high blood pressure, obesity, chronic lower back pains, stress disorders, stomach ulcers and some mental health problems. Activity related to the items identified in this test will help to prevent some of these problems.

Results of pre and post test scores can be compared to show students their improvement on each test item, thus promoting overall health and fitness. It is intended to encourage an enhanced state of health and improved feeling of life and performance in our youth.

The test is designed to provide the students, parents and physical education teachers with the necessary information to identify potential problem areas. With this information, a daily exercise program can be designed to meet the student's individual needs.

Preparation

A training period of four to six weeks should be conducted for all students prior to taking the test. Only after such a training period can we expect a student to perform adequately. Appropriate exercises should be selected to best prepare the students for this test. This is especially important for the one mile run.

Order Of Testing

It is recommended that the flexed arm hang test be administered prior to the sit-up test and the one mile run be the last of the five test items to be administered. The order of the remaining items is up to the instructor.

Flexed Arm Hang

Test:	FLEXED ARM HANG
Objective:	To assess the muscular strength and endurance of the upper arms and shoulder girdle area (in a static position).
Method:	Hanging in the flexed arm hang position as long as you can.
Equipment:	A horizontal bar (high bar), 1½ inches in diameter and a stopwatch.

Instructions For Administrator

1. Set the bar height so that the tallest person will not touch the floor when in the flexed arm position.
2. Student stands on a chair.
3. Student should grasp the bar with the palms facing away from his/her body and with the hands shoulder width apart.
4. Two spotters should raise the student to the flexed arm hang position with the chin over the bar. This is done by holding and lifting the student at the thigh then remove the chair.
5. The timer says "go" and the spotters no longer support the student.
6. The student should hold this position as long as possible.
7. The time should be stopped as soon as the chin touches the bar, drops below the bar, or the head tilts backwards.

Scoring:

One trial is administered and recorded on the data sheet. The score is to be to the nearest second.

Instructions To Student

You will be placed in the flexed arm hang position on the bar with your chin above the bar. Your elbows will be bent and the palms will be facing away from the body with your hands shoulder width apart. You will hang as long as possible in this static position. Your score will be the total number of seconds you can hang from the bar without the chin touching the bar, dropping below the bar, or the head tilting backwards.

Test Norms for Flexed Arm Hang can be found on page 12.

Bent Knee Sit-Up

Test:	BENT KNEE SIT-UP
Objective:	To assess the strength and muscular endurance of the abdominal region of the body.
Method:	Performing as many sit-ups as you can in 60 seconds.
Equipment:	Flat surface with mat and stopwatch.

Instructions For Administrator

1. Student lies on mat with his/her feet on mat or floor and knees bent at 60 degree angle with feet together and about 12 inches from buttocks.
2. Hands are placed across the chest with right hand at left bicep and left hand at right bicep. It may be easier for students to grasp shirt at this location.
3. A partner holds the ankles down making sure that feet are flat and heels are in contact with the mat or floor at all times.
4. When the student is in the up position he/she must touch the forearms to the thighs while the elbows are touching the abdomen (or bring head over knees).
5. Student's shoulder blades must contact the mat when he/she returns to the starting or down position.

Scoring:

One point is given each time the student touches the forearm to the thigh. Students must return to down position as described above. One trial is given and the score is the number repetitions done in 60 seconds.

Instructions To Student

Lie on the mat with your hands touching your opposite bicep (right hand to left bicep, left hand to right bicep). You may grasp your shirt. Your knees will be bent with your feet approximately 12 inches from your buttocks. Your feet will remain flat and in contact with the mat or floor. A partner will hold your feet. Sit up until your forearms touch your thighs while your elbows touch your abdomen (or head is over knees). Be sure to tuck your chin to your chest. You will perform as many repetitions as possible in 60 seconds.

Test Norms for Bent Knee Sit-Up can be found on page 13.

Sit And Reach

Test:	SIT AND REACH
Objective:	To assess the flexibility of the posterior thigh, hip flexors and lumbar region of the spinal column.
Method:	To determine how far a student can extend their fingertips beyond their feet with legs straight.
Equipment:	Yardstick, towel and tape.

Instructions For Administrator

1. Tape a yardstick to the floor so that the 10 inch mark is perpendicular to a line on the gym floor.
2. Two heel cups are taped on the line 6 inches apart for placement of the student's heels.
3. Student sits on the floor with feet straddling the yardstick and the low numbers toward him/her.
4. A rolled towel (not to exceed 3" thickness) may be placed under the back of the student's knees to prevent hyperextension of the knee.
5. The student's partner places their toes against the student's heels to prevent movement forward.
6. An assistant should be beside the student to be sure the legs stay straight.
7. Student should place one hand on top of the other and while holding the hands in that position bob forward slowly four times. On the fourth bob, touch the yardstick and hold while the instructor counts for three seconds.

Scoring:

Three trials are recorded on the data sheet. Measure to the nearest inch. The score is the best of the three trials.

Instructions To Student

Sit on the floor and place one leg on each side of the yardstick with your heels in the taped areas. Put one hand on top of the other and lean forward. Bob four times while reaching down the yardstick. On the fourth bob, reach as far down the yardstick as possible and hold while the instructor counts to three. Your score will be the farthest distance reached on three trials.

Test Norms for Sit and Reach can be found on page 14.

Skinfold Measurement

Test:	SKINFOLD MEASUREMENT
Objective:	To assess body composition of the student by determining their percent of body fat. Avoid use of the word "fat" when instructing students.
Method:	Measuring the thickness of the skinfold (indication of skin, subcutaneous connective tissue and fat) pinched at the triceps.
Equipment:	Skinfold caliper (FAT-O-METER, Health & Educational Services, Chicago, Illinois). Calipers can be obtained by contacting: First State Fitness Test Coordinator, Department of Physical Education, University of Delaware, Newark, DE 19711. Telephone: 738-2265

Instructions For Administrator

1. Demonstrate the procedure to show it does not hurt.
2. All measurements should be taken on the right arm.
3. Arm remains relaxed with the palm facing the leg.
4. The skinfold is taken parallel to the long axis of the arm (vertical) at the tricep on the back of the arm midway between the acrominon process (shoulder) and the elecranon process (elbow).
5. Grasp the skinfold between the thumb and index finger with the fold running vertically.
6. Apply the caliper jaws one centimeter (1/16") above the thumb and index finger.
7. When the caliper spring is released the slide rule should come to a rest and be steady.
8. Read the scale in millimeters.

Scoring:

Three measurements are taken and recorded on the data sheet. At least two must be the same. If not, continue to measure until two consecutive readings are the same. Measurement is in millimeters. The score is the repeated score.

Instructions To Student

Stand erect with your right arm relaxed and the palm facing the leg. Three skinfold measurements will be taken at the tricep of your right arm.

Test Norms for Skinfold Measurement can be found on page 15.

One Mile Run

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Test:	ONE MILE RUN
Objective:	To assess a students cardio-respiratory endurance. To determine the maximum ability of the heart, lungs and vessels to take in, deliver and utilize oxygen.
Method:	Running a mile as fast as you can.
Equipment:	A measured track or field and stopwatch.

Instructions For Administrator

1. Test half the class at a time.
2. Each student should have a partner (not a friend).
3. One student runs while his/her partner makes note of their time as they cross the finish line.
4. The instructor will be calling out the time as the students are crossing the finish line.
5. The partner then goes to the recorder and gives his/her partner's name and time.

Scoring:

The score is the time in minutes and seconds (nearest) that it takes the student to run one mile.

Instructions To Student

On command, you will run ( ) times around the course. Your partner will note your time at the finish and give it to the recorder. Pace yourself so that you are able to run the entire mile. Make your first lap the slowest and your last lap the fastest.

NOTE: *Data for the Test Norms on the One Mile Run is being collected and will be published in a supplement.*

TEST NORMS: Flexed Arm Hang

MALES

AGE	PERCENTILE 10	20	30	40	50	60	70	80	90	100
8—9	1	2	11	15	21	22	23	28	29	31
10	4	6	7	10	12	16	19	25	38	73
11	1	3	5	7	9	12	16	21	31	76
12	2	4	5	9	12	14	18	21	26	60
13	2	5	6	10	12	17	20	25	33	70
14	5	7	11	16	19	23	26	31	45	103
15	12	19	27	31	36	39	42	59	65	102
16	11	17	25	29	31	34	40	50	60	109
17—18	13	17	22	24	31	33	36	46	52	66

Scores in seconds

FEMALES

AGE	PERCENTILE 10	20	30	40	50	60	70	80	90	100
8—9	6	7	9	12	14	15	18	19	25	29
10	1	2	3	5	6	7	10	15	30	71
11	1	2	3	5	7	9	11	15	25	61
12	1	3	4	5	8	10	13	19	27	40
13	1	2	3	4	6	7	9	13	16	39
14	2	4	5	6	8	12	14	17	27	54
15	3	5	7	10	12	15	19	22	30	77
16	2	4	6	11	12	15	18	25	31	51
17—18	1	3	5	6	7	11	16	23	35	61

Scores in seconds

MALES

AGE	PERCENTILE 10	20	30	40	50	60	70	80	90	100
8—9	20	24	27	28	31	32	39	40	44	48
10	21	27	29	31	34	37	39	43	45	58
11	25	28	32	34	36	39	41	45	51	64
12	24	26	29	33	35	37	40	43	50	70
13	22	28	31	32	36	39	41	45	50	68
14	29	32	36	39	40	45	47	51	55	74
15	37	40	42	46	48	50	53	57	60	68
16	37	40	43	45	47	50	52	54	60	74
17—18	31	35	41	44	47	50	55	60	62	69

Scores in repetitions

FEMALES

AGE	PERCENTILE 10	20	30	40	50	60	70	80	90	100
8—9	14	16	19	24	26	27	30	30	36	41
10	18	21	23	25	26	29	32	36	39	61
11	20	24	27	29	31	34	36	39	44	58
12	22	25	28	31	33	35	39	42	44	61
13	22	25	28	30	32	35	37	39	41	48
14	27	30	31	33	36	39	40	41	45	59
15	30	32	34	36	38	39	42	45	50	68
16	26	30	32	35	37	39	41	45	50	71
17—18	21	25	30	34	37	40	43	46	50	62

Scores in repetitions

TEST NORMS: Bent Knee Sit-Up

TEST NORMS: Sit And Reach

MALES

AGE	PERCENTILE 10	20	30	40	50	60	70	80	90	100
8—9	9	10	11	11	14	15	16	18	19	22
10	8	9	10	11	11	12	12	14	15	21
11	8	9	10	11	12	13	13	14	17	22
12	6	8	10	10	11	13	13	14	16	21
13	6	8	9	10	11	11	12	13	15	20
14	2	3	4	5	8	10	10	12	13	18
15	1	2	2	3	4	5	6	9	12	19
16	0	2	3	4	5	6	7	9	13	20
17—18	2	3	4	6	7	8	13	17	18	22

Scores in inches

FEMALES

AGE	PERCENTILE 10	20	30	40	50	60	70	80	90	100
8—9	1	10	12	13	13	14	16	16	18	20
10	11	12	14	15	15	16	18	19	20	25
11	10	11	12	13	14	14	15	17	18	25
12	9	10	12	12	13	14	15	16	17	21
13	10	11	12	12	13	14	15	17	18	22
14	3	4	8	11	12	13	14	16	17	21
15	2	5	7	8	10	11	12	14	16	24
16	3	5	6	7	8	10	11	13	15	26
17—18	2	3	4	6	7	9	12	15	17	23

Scores in inches

MALES

AGE	PERCENTILE 10	20	30	40	50	60	70	80	90	100
8—9	21	21	17	17	16	16	16	11	11	8
10	23	21	19	18	17	16	12	11	9	8
11	29	23	22	20	16	16	13	11	9	7
12	25	21	20	17	16	16	15	14	14	6
13	25	23	19	18	16	15	14	12	10	5
14	24	20	18	18	16	15	13	12	10	6
15	24	22	19	17	16	15	14	12	11	5
16	23	20	18	17	16	15	14	13	12	8
17—18	28	24	18	17	16	14	13	11	10	6

Scores in millimeters

FEMALES

AGE	PERCENTILE 10	20	30	40	50	60	70	80	90	100
8—9	20	20	15	15	14	14	13	12	10	7
10	23	22	20	18	15	15	14	14	12	11
11	25	23	21	19	17	16	15	13	12	9
12	26	25	21	20	19	16	14	12	10	7
13	26	23	21	20	17	16	15	13	11	9
14	26	22	20	19	17	16	14	13	11	6
15	29	26	23	21	20	18	17	16	14	11
16	33	30	26	25	25	22	20	18	16	12
17—18	28	25	24	23	22	20	19	18	16	11

Scores in millimeters

SCORE SHEET

SAMPLE

TEACHER _____

NAME _____ SCHOOL _____ DATE _____
LAST FIRST MIDDLE

AGE _____ GRADE _____ CLASS _____ SEX M _____ F _____

WEIGHT _____ HEIGHT _____

TEST ITEMS	TRIAL 1	TRIAL 2	TRIAL 3	BEST SCORE
FLEXED ARM HANG	SEC.			SEC
BENT KNEE SIT-UP (60 SECONDS)	NUMBER			NUMBER
SIT AND REACH	IN	IN	IN	IN
SKINFOLD MEASUREMENT	MM	MM	MM	MM
ONE MILE RUN	MIN. SEC			MIN. SEC

INSTRUCTIONS TO ADMINISTRATOR: When recording scores, carbon copy them and send as a group to: **First State Fitness Test Coordinator, Department of Physical Education, University of Delaware, Newark, DE 19711. Telephone: 738-2265.**

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